

AMENDMENTS TO THE CLAIMS

This listing of Claims shall replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A computer implemented method of matching a selectable user module with plurality of programmable hardware resources associated with a programmable integrated circuit comprising:

displaying said selectable user module, wherein said user module is a representation of a configuration of a programmable circuit for implementation on said programmable integrated circuit;

displaying said plurality of programmable hardware resources associated with a programmable integrated circuit;

in response to a selection of said selectable user module, comparing a description of a hardware resource requirement of said selectable user module with a description of said plurality of programmable hardware resources associated with said programmable integrated circuit; ~~and~~

in response to said comparing, determining a ~~first~~ plurality of allowed programmable hardware resources of the programmable integrated circuit satisfying the hardware resource requirement of said programmable circuit each allowed programmable hardware resource for implementing said programmable circuit of said selectable user module; ~~wherein said and~~

graphically depicting a first allowed programmable hardware resource of said plurality of allowed programmable hardware resources is graphically corresponded within said displayed plurality of programmable hardware resources wherein said first allowed programmable hardware resource graphically associated to with said selectable user module.

2. (Previously Presented) The method according to Claim 1 wherein the description of the hardware resource requirement of said selectable user module is represented as XML data.

3. (Previously Presented) The method according to Claim 1 wherein the description of the plurality of programmable hardware resources are represented as XML data.

4. (Currently Amended) The method according to Claim 1 wherein said graphically depicting said first allowed programmable hardware resource comprises visually highlighting said first ~~further comprising highlighting the first~~ allowed programmable hardware resource using a graphical user interface within said displayed plurality of programmable hardware resources.

5. (Cancelled)

6. (Currently Amended) The method according to Claim ~~5~~1 further comprising ~~highlighting~~graphically depicting the a second allowed
programmable resource of said plurality of allowed programmable hardware
resources using said graphical user interface within said displayed plurality of
programmable hardware resources.

7. (Currently Amended) The method according to Claim 1 further comprising identifying a plurality of disallowed programmable hardware
resources associated with said programmable integrated circuit wherein the
disallowed resources represents ~~an~~ unavailable resources associated with said
programmable integrated circuit that otherwise satisfies the hardware resource
requirement of said selectable user module.

8. (Currently Amended) The method according to Claim 7 further comprising ~~highlighting~~graphically depicting the plurality of disallowed
programmable hardware resource using said graphical user interface.

9. (Currently Amended) The method according to Claim ~~8~~6 wherein
said graphically depicting said second allowed programmable resource
comprises highlighting said second allowed programmable resource within said
displayed plurality of programmable hardware resources.~~the disallowed~~
~~programmable resource is highlighted in gray.~~

10. (Previously Presented) The method according to Claim 1 further comprising updating the description of the hardware resource requirements of said selectable user module.

11. (Previously Presented) The method according to Claim 10 wherein said updating is performed in response to changes in a hardware resource requirement of said selectable user module.

12. (Previously Presented) The method according to Claim 1 further comprising adding an additional selectable user module to the description of the hardware resource requirement of said selectable user module.

13. (Previously Presented) The method according to Claim 1 further comprising updating the description of the plurality of programmable hardware resources associated with said programmable integrated circuit.

14. (Previously Presented) The method according to Claim 13 further comprising adding an additional chip description to the description of the plurality of programmable hardware resources associated with said programmable integrated circuit.

15. (Currently Amended) An apparatus comprising:

a user module description database containing a description of a hardware resource requirement of a user module;

a hardware description database coupled to the user module description database and containing a description of a pre-existing hardware resource of a programmable integrated circuit;

a resource placement locator coupled to the user module description database and configured to compare the description of the hardware resource requirement of the user module with the description of the pre-existing hardware resource of the programmable integrated circuit; and

software for generating data to be displayed, said data depicting hardware resources of said programmable integrated circuit and depicting a ~~first plurality of~~ allowed hardware resources of said programmable integrated circuit, wherein each of said first plurality of allowed hardware resources satisfies the hardware resource requirement of said hardware resource requirement for implementing said programmable circuit of said user module, and wherein said data graphically depicts at least one of said plurality of allowed hardware resources with said hardware resources of said programmable integrated circuit and said data is further operable to graphically correspond-associate said first one of said plurality of allowed hardware resources of said programmable integrated circuit to said user module.

16. (Original) The apparatus according to Claim 15 wherein the user module description database is represented as XML data.

17. (Currently Amended) The apparatus according to Claim 15 wherein said data further graphically depicts another allowed programmable resource of said plurality of allowed programmable hardware resources within said hardware resources of said programmable integrated circuit.~~the hardware description database is represented as XML data.~~

18. (Currently Amended) A computer implemented method of determining hardware resources for an electronic design comprising:
displaying a plurality of pre-existing programmable hardware resources associated with a programmable electronic device;

selecting an electronic design represented as a user module of predefined functionality implementable on a~~said~~ programmable electronic device;

in response to said selecting, accessing a data description of hardware resources required for implementing said user module on said programmable electronic device;

accessing data descriptions of said~~a~~ plurality of pre-existing programmable hardware resources of said programmable electronic device on which to implement said user module;

comparing said data description of said user module with said data descriptions of said plurality of pre-existing programmable hardware resources to determine a first plurality of allowed programmable hardware resources that satisfies a hardware resource requirement of said programmable electronic

device for implementing a programmable circuit of said user module, and
wherein a first allowed programmable hardware resource of said plurality of
allowed programmable hardware resources is graphically depicted with said
displayed plurality of programmable hardware resources and wherein said
comparing automatically determines potential placement options of said user
module on said programmable electronic device, wherein each potential
placement option ~~represents at least one of said pre-existing programmable~~
~~hardware resources selected~~ is operable to implement said user module; and
in response to said comparing, graphically ~~corresponding~~ associating said
selected user module to said first allowed programmable hardware resource of
said plurality of allowed programmable hardware resources.

19. (Currently Amended) A method as described in Claim 18 further
comprising:

displaying on a graphical user interface, a first potential placement of said
potential placement options by graphically depicting said first allowed
programmable hardware resource; and

in response to a user selecting a next placement icon, displaying on said
graphical user interface, a second potential placement of said potential
placement options by graphically depicting a second allowed programmable
hardware resource of said plurality of allowed programmable hardware
resources.

20. (Previously Presented) A method as described in Claim 19 wherein potential placement options are displayed using visual attributes and wherein said programmable electronic device is a programmable microcontroller device.

21. (Previously Presented) A method as described in Claim 18 wherein said user module requires one pre-existing programmable hardware resource to place.

22. (Previously Presented) A method as described in Claim 18 wherein said user module requires two pre-existing programmable hardware resources to place.

23. (Previously Presented) A method as described in Claim 18 wherein said plurality of pre-existing programmable hardware resources comprise a plurality of pre-existing analog programmable hardware resources and a plurality of pre-existing digital programmable hardware resources.

24. (Previously Presented) A method as described in Claim 18 wherein said comparing automatically prunes out pre-existing programmable hardware resources that do not satisfy requirements of said user module.

25. (Original) A method as described in Claim 18 wherein said data descriptions are created in XML.

26. (Currently Amended) A computer system comprising a processor coupled to a bus and a memory coupled to said bus and containing instructions that implement a method of determining hardware resources for an electronic design comprising:

displaying a plurality of pre-existing programmable hardware resources associated with a programmable electronic device;

selecting an electronic design represented as a user module of predefined functionality implementable on ~~said~~ a programmable electronic device;

in response to said selecting, accessing a data description of hardware resources required for implementing said user module on said programmable electronic device;

accessing data descriptions of a plurality of pre-existing programmable hardware resources of said programmable electronic device on which to implement said user module;

comparing said data description of said user module with said data descriptions of said plurality of pre-existing programmable hardware resources to determine a ~~first~~ plurality of allowed programmable hardware resources that satisfies a hardware resource requirement of said programmable electronic device for implementing a programmable circuit of said user module; and

~~wherein graphically depicting a first allowed programmable hardware resource~~ said plurality of allowed programmable hardware resources with said displayed plurality of programmable hardware resources and wherein said

comparing automatically determines potential placement options of said user module on said programmable electronic device, wherein each potential placement option ~~represents at least one of said pre-existing programmable hardware resources~~ is selected operable to implement said user module; and

in response to said comparing, graphically ~~corresponding~~ associating said selected user module to said first allowed programmable hardware resource of said plurality of allowed programmable hardware resources.

27. (Currently Amended) A computer system as described in Claim 26 wherein said method further comprises:

displaying on a graphical user interface, a first potential placement of said potential placement options by graphically depicting said first allowed programmable hardware resource; and

in response to a user selecting a next placement icon, displaying on said graphical user interface, a second potential placement of said potential placement options by graphically depicting a second allowed programmable hardware resource of said plurality of allowed programmable hardware resources.

28. (Previously Presented) A computer system as described in Claim 27 wherein potential placement options are displayed using visual attributes and wherein said programmable electronic device is a programmable microcontroller device

29. (Previously Presented) A computer system as described in Claim 26 wherein said user module requires one pre-existing programmable hardware resource to place.

30. (Previously Presented) A computer system as described in Claim 26 wherein said user module requires two pre-existing programmable hardware resources to place.

31. (Previously Presented) A computer system as described in Claim 26 wherein said plurality of pre-existing programmable hardware resources comprise a plurality of pre-existing analog programmable hardware resources and a plurality of pre-existing digital programmable hardware resources.

32. (Previously Presented) A computer system as described in Claim 26 wherein said comparing automatically prunes out pre-existing programmable hardware resources that do not satisfy requirements of said user module.

33. (Original) A computer system as described in Claim 26 wherein said data descriptions are created in XML.

34 - 37 (Cancelled)